

RESULTS Participants with elevated ALT had higher levels of almost all cardiometabolic risk factors than other participants. Among individuals with elevated ALT, the weight, height, WC, and BMI, which were indicators for general and abdominal obesity, were significantly higher than those with normal ALT. The difference was not significant for the race, current smoking or physical activity. In other cardiometabolic risk factors, such as SBP, DBP, FPG, TC, TG, LDL-C, and serum uric acid, were all strongly higher in elevated ALT group than normal ALT group. The logistic regression analysis revealed that male sex, younger age, and presence of high TC, high TG, low HDL-C, current smoking status, BMI above 25 kg/m², abdominal obesity, hyperuricemia, and HtgW phenotype were significantly associated with elevated ALT level. Sex-related differences were also discussed. For the male, hypertension (OR 1.33, 95% CI 1.08-1.62), high TC (OR 1.63, 95% CI 1.23-2.17), high TG (OR 1.62, 95% CI 1.25-2.09), BMI above 25 kg/m² (OR 1.52, 95% CI 1.07-2.18), and hyperuricemia (OR 1.92, 95% CI 1.52-2.40) were statistically related to an elevated serum ALT, but this was not so for the female.

CONCLUSIONS This study documented significant relationship of elevated ALT with cardiometabolic risk factors and several sex-related differences were indicated in Rural Chinese Population. The elevated serum ALT is associated with a worse cardiac risk profile.

GW26-e3874

Association between Metabolically Healthy Obesity and Hyperuricemia in Rural Chinese Population: A Cross-Sectional Study

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OBJECTIVES The present study investigated the association between MHO and the prevalence of hyperuricemia in a representative sample of adults living in rural Northeast Chinese population.

METHODS This was a cross-sectional study conducted during July 2012 to August 2013, including a total of 11,435 (5,300 men and 6,135 women) aged ≥ 35 years in rural areas of Liaoning Province. Anthropometric measurements, laboratory examinations and self-reported information on lifestyle factors, such as physical activities, current smoking and drinking status, dietary habits and familial factors were collected by trained personnel.

RESULTS we showed a low prevalence of MHO (3.7%) and a high prevalence of MUO (14.5%). 47(11.2%) of MHO suffered from hyperuricemia and 325(20.1%) in MUO. As the weight increasing, the prevalence of hyperuricemia was rising significantly for male, but in female with metabolic healthy it's not obvious. Both in male and female group, MHO and MUO were significantly associated with an increased risk of hyperuricemia. When obesity was accompanied with metabolically unhealthy, the risk degree was up to 4.90(95% CI: 3.92-6.14). The odds ratio of hyperuricemia was 2.77 (95% CI: 1.76-4.35) in the MHO subjects of male that was higher than metabolically unhealthy normal weight (OR=1.61, 95% CI: 1.20-2.17).

CONCLUSIONS Importantly, our present study reported the strong association of overweight/obesity and metabolic status with the prevalence of hyperuricemia. There was no healthy status in obesity subgroup for hyperuricemia. With metabolic healthy, obese persons should also pay attention to high risk of hyperuricemia.

GW26-e3886

A Body Shape Index and Body Roundness Index: Two new body indices to identify diabetes mellitus among rural populations in northeast China

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OBJECTIVES The Body Mass Index (BMI) has long been used as an anthropometric measurement. While waist circumference (WC) and waist-to-height ratio (WtHR) have been proposed as alternatives to BMI, their abilities to discern between fat and lean mass have not been evaluated. Recently, two new anthropometric indices, the A Body Shape Index (ABSI) and Body Roundness Index (BRI) have been developed as possible improved alternatives to BMI and WC.

METHODS This cross-sectional study was conducted in the rural areas of northeast China from January 2012 to August 2013, and the final analysis included data obtained from 5253 men and 6092 women. ABSI, BMI, BRI and waist-to-height ratio (WtHR) were calculated according to their respective formulas.

RESULTS A linear regression analysis showed that the highest correlations with fasting plasma glucose (FPG) were shown by ABSI in men and WC in women. ABSI showed the lowest AUCs for DM in both sexes, while BRI had high AUCs for DM that nearly equaled those of WC and WtHR. A multivariate logistic regression analysis showed that ABSI had the lowest predictive power for DM in both sexes, while BRI was a better predictor.

CONCLUSIONS Our results showed neither ABSI nor BRI were superior to BMI, WC, or WtHR for predicting the presence of diabetes mellitus. ABSI showed the weakest predictive ability, while BRI showed potential for use as an alternative obesity measure in assessment of diabetes mellitus.

GW26-e1539

Association of abnormal uric acid metabolism and atrial fibrillation in patients with essential hypertension

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OBJECTIVES Atrial fibrillation is the most common clinical arrhythmia, which has a complex etiology. It usually occurs with some other existing diseases. There is a type of atrial fibrillation happened together only with hypertension. Patients of this kind of atrial fibrillation all had high serum uric acid level. Uric acid is a byproduct of purine catabolism. It is a newly found independent predictor of cardiovascular disease. But the relationship between uric acid and atrial fibrillation is still unknown. Our hypothesis is in the atrial, uric acid could reduce ability of vasodilation which leads to vessel fibrosis. Then the structure of the atrium changes, finally atrial fibrillation happens.

METHODS In this retrospective study we recruited consecutive patients with essential hypertension in our hospital between January 2010 and December 2014. Hypertension was diagnosed as blood pressure levels more than 140/90 mmHg (mean of 3 measurements) in the supine position or the use of antihypertensive medications. The arrhythmia diagnosis required documentation from an official medical record, a 12-lead ECG, or a 24-hour Holter recording and its classification was based on authoritative international consensus statements. Exclusion criteria were history of coronary artery disease, valvular heart disease, congenital heart disease, cardiomyopathy, left ventricular systolic dysfunction, previous cardiac surgery, diabetes, thyroid disease, serum creatinine >110 $\mu\text{mol/L}$, recent infection, autoimmune or inflammatory diseases, respiratory diseases, administration of drugs that affect UA metabolism (apart from diuretics). Each clinical process note contains patient's basic condition and the blood and urine test, results, especially cardiac ultrasound, renal function and cholesterol.

RESULTS Nine hundred and forty patients were finally included in the analysis. We classify the study population according to the presence or absence of atrial fibrillation. There were no significant differences between the two groups regarding sex, WBC Count, potassium level, serum Cr levels, systolic and diastolic blood pressure, LVPWT and IVST. Compared with the patients without AF, patients with AF were older (67.13 ± 10.59 years old vs. 56.78 ± 14.92 years old), had a longer duration of hypertension (9.27 ± 9.50 years vs. 3.85 ± 3.57 years, $p < 0.01$), higher uric acid level (388.11 ± 112.51 $\mu\text{mol/L}$ vs. 311.54 ± 122.51 $\mu\text{mol/L}$, $p < 0.01$), increased LAD (45.79 ± 7.56 mm vs. 34.08 ± 4.36 mm, $p < 0.01$). The association between uric acid and atrial fibrillation was further assessed by logistic regression analysis. This analysis showed independent associations between atrial fibrillation and uric acid (OR = 1.014; 95% CI = 1.005-1.023, $p = 0.002$), and LAD (OR = 1.390; 95% CI: 1.221-1.582; $p < 0.001$).

CONCLUSIONS We found uric acid levels are related with atrial fibrillation in hypertensive patients. The role of uric acid-lowering therapy in patients with hypertension will be a new insight into preventing atrial fibrillation improvement in those patients.

GW26-e2209

Plasma Triglyceride is a predictive factor for arterial stiffness: a community-based 4.8-year prospective study Abstract

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OBJECTIVES Arterial stiffness has been increasingly recognized as a strong predictor of cardiovascular disease (CVD) and atherosclerotic disease. The association between triglyceride and arterial stiffness is

not well characterized. The current study investigated the relationship between triglyceride and arterial stiffness in a community-based longitudinal sample from Beijing, China.

METHODS A total of 1447 subjects were initially eligible for the prospective study. We measured carotid-femoral pulse wave velocity (cf-PWV). Plasma triglyceride, high density lipoprotein cholesterol, low density lipoprotein cholesterol, total cholesterol et al were also tested in these subjects. In this prospective study, all subjects was classified into four groups according to triglyceride level. A forward stepwise multivariate logistic regression analysis was performed to obtain the odds ratios (OR) and 95% confidence intervals (CI) of TG for cf-PWV (elevated (≥ 12 m/s) vs normal level (< 12 m/s)). Pearson correlation, Partial correlation, Multiple linear regression analysis was performed to analyze the association between cf-PWV and characteristic variables.

RESULTS The multiple logistic regression analysis revealed that the higher triglyceride levels were significantly associated with elevated cf-PWV after adjusting for confounded factors. Compared with the first quartile, the adjusted OR of cf-PWV in the second, the third and the fourth quartiles were 1.187 (95%CI :0.761-1.853, $p = 0.450$), 1.385 (95%CI: 1.062-1.806, $p = 0.016$), 1.236 (95%CI: 1.018-1.501, $p = 0.032$); In Pearson correlation, Partial correlation, Multiple linear regression analysis triglyceride was positively associated with cf-PWV ($r = 0.093$, $P = 0.001$) ($R = 0.094$, $P = 0.001$) ($\beta = 0.572$, $P = 0.001$). The level of triglyceride in elevated PWV was significantly higher than in normal cf-PWV (1.917 ± 1.27 vs 1.748 ± 1.24 , $p = 0.017$).

CONCLUSIONS The present study clearly demonstrated an association between triglyceride and arterial stiffness, indicating that triglyceride was an independent predictive factor for arterial stiffness in a community-based population.

GW26-e2432

Modifiable risk factors in isolated septal defects in Guangdong, China

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OBJECTIVES Ventricular septal defects (VSDs) and atrial septal defects (ASDs) are the most common types of congenital heart defect (CHD). If even a fraction of these defects could be prevented by decreasing maternal or paternal exposure, this would result in improved reproductive outcome and a tremendous saving of health care moneys. Although these two defects are two typical septal defects in the heart, they may be sensitive to different spectrum of risk factors. And few study investigated the risk factors for association of VSD and ASD. This study aimed to explore risk factors by isolated VSD, ASD and association of VSD and ASD in Southern China, Guangdong Province.

METHODS This is a population-based case-control study basing on the Guangdong Registry of Congenital Heart Disease study, 2004-2013. Totally 940 isolated and simple VSD cases, 444 ASD cases and 283 association of VSD and ASD cases, and their 1:1 matched controls were enrolled in the current analysis. Univariate logistic regression was used to screen potential risk factors. Conditioned multivariate logistic regression was used to compute adjusted ORs while simultaneously controlling for confounders.

RESULTS We found the common risk factor for these three groups was residence proximity to main traffic less than 50 meters with OR ranging from 1.69 (95% CI: 1.05, 2.72) to 7.36 (95% CI: 3.10, 17.48), and paternal alcohol intake with OR ranging from 3.27 (95% CI: 1.79, 5.94) to 3.82 (95% CI: 1.72, 8.47). Specific risk factors for VSD was maternal age older than 40 years old (OR: 5.13, 95%CI: 1.10, 23.84), maternal occupation as housekeeper (OR: 2.01, 95%CI: 1.05, 3.84) and Chinese herb use (OR: 3.98, 95%CI: 1.06, 14.92). Specific risk factors for ASD was maternal influenza at the first trimester (OR: 8.18, 95%CI: 2.06, 32.48). Specific risk factors for association of VSD and ASD was maternal occupation as office staff (OR: 40.34, 95%CI: 1.81, 899.63). Among all the potential risk factors, maternal environmental exposures (chemical contact, living in newly-renovated rooms, residential proximity to traffic < 50 m, and certain maternal occupations) and maternal perinatal diseases and medication use factors (maternal fever, influenza, threatened abortion, antibiotic and Chinese herb use) were two dominant groups of risk factors. Paternal exposure before pregnancy was also significant risk factors for these three subgroups of septal defects. We found dose-response relationships between the number of maternal environmental exposure factors and the risk of isolated septal defects.

CONCLUSIONS VSD, ASD, association of VSD and ASD were sensitive to different spectrum of risk factors. Maternal environment risk exposures, maternal perinatal diseases and medication use at 1st trimester, and paternal alcohol intake and smoking was associated

with occurrence of most septal defects in Guangdong population. The current study further our knowledge regarding changeable risk factors for septal defects.

GW26-e2926

Study on the distribution of three SNPs (ALDH2rs671, CETPrs2303790, MTHFRrs1801133) in cardiovascular related genes and risk of cardiovascular disease in Zhangzi Island population

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OBJECTIVES The three SNPs (ALDH2rs671, CETPrs2303790, MTHFRrs1801133) is associated with cardiovascular disease and hypertension in the Chinese population, but the distribution of SNPs in Zhangzi Island is not clear. The purpose of this study is to investigate the association between the SNP and risk factors that is closely correlated with cardiovascular disease and high blood pressure in Zhangzi Island in China.

METHODS A total of 180 subjects in Zhangzi Island were examined the association of the SNPs with cardiovascular risk factors that related with metabolic traits(triglycerides, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, glucose, casual spot and predict 24h urinary sodium, potassium and creatinine, the ratio of sodium to potassium in 24h urine), the diastolic blood pressure (DBP) and systolic blood pressure (SBP). The SNPs were genotyped by the TaqMan real-time polymerase chain reaction assay.

RESULTS rs671 SNP in ALDH2 was significantly associated with LDL-C ($P < 0.05$). After adjusting for age, sex, BMI, we found that the rs671 SNP in ALDH2 gene significantly increased SBP ($P < 0.05$, $\beta = 5.953$). There were significance associations between DBP and 24h urinary sodium ($P < 0.05$). There was no association detected for SNPs in CETP or MTHFR gene with cardiovascular disease and blood pressure in Zhangzi Island.

CONCLUSIONS We investigated the association of rs671 SNP in ALDH2 with risk of cardiovascular diseases and high blood pressure including LDL-C and estimated sodium excretion. The estimated sodium excretion was associated with DBP. But none of association detected for CETPrs2303790, MTHFRrs1801133 with cardiovascular disease and blood pressure in Zhangzi Island population. To observe these correlations, further analysis and greater sample size with high risk factors with cardio-cerebrovascular diseases are needed.

GW26-e3861

Prevalence of dyslipidemia and associated factors among the hypertensive population from rural Northeast China: an update

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OBJECTIVES The last study reported the prevalence of dyslipidemia in hypertensive residents from rural Northeast China was conducted approximately ten years ago. The purpose of this study was to update the prevalence and epidemiological features of dyslipidemia.

METHODS A cross-sectional survey was conducted from July 2012 to August 2013 through a cluster multistage sampling to a resident group of 5919 individuals with hypertension (4048 vs. 1871, without vs. with antihypertension treatment), age ≥ 35 years, in the rural Northeast China. Serum lipids level were proposed by National Cholesterol Education Program Adult Treatment Panel III.

RESULTS Of the hypertension residents without antihypertension treatment 34.5% had borderline high total cholesterol (TC), 19.2% had high TC, 11.4% had low high-density lipoprotein cholesterol (HDL-C) and 37.4% had high non HDL-C. The population with borderline high, high, and very high low-density lipoprotein cholesterol (LDL-C) was 20.9%, 6.7%, and 2.3%, respectively. In addition, 14.3% had borderline high triglycerides (TG), 17.4% had high TG and 2.4% had very high TG. The awareness rate of dyslipidemia among the study population was 5.9%. After adjusting for independent variables, fasting plasma glucose (FPG), body mass index (BMI), Han nationality, current drinking and smoking, higher annual income and classification of blood pressure were risk factors for dyslipidemia while moderate physical activity was protective factor for dyslipidemia. On the contrary, gender and current drinking decrease the risk of HDL-C.

CONCLUSIONS The prevalence of dyslipidemia was dramatically high and exhibited increasing trend in hypertensive rural Northeast Chinese. Dyslipidemia screening was in-need in all diagnosed hypertensive individuals.